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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/945,116	08/31/2001	Jiandong Shen	CISCP193/3930	2081
22434	7590	08/12/2005	EXAMINER	
BEYER WEAVER & THOMAS LLP P.O. BOX 70250 OAKLAND, CA 94612-0250			SENF1, BEHROOZ M	
			ART UNIT	PAPER NUMBER
			2613	

DATE MAILED: 08/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/945,116	<b>Applicant(s)</b> SHEN ET AL.	
	<b>Examiner</b> Behrooz Senfi	<b>Art Unit</b> 2613	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. *Upon further review of the Kikuchi reference. It is noted that "code vector" in Kikuchi reference is not the same as motion vector. The codebook index in Kikuchi reference is for the error signal i.e. the residual error as now claimed, and not for the motion vector as alleged in the applicant remarks (page 10, last two lines). Therefore, applicant's arguments (filed 5/27/2005) with respect to newly amended independent claims 1, 7, 14, 23, 34 and 40 have been considered but are moot in view of the new application of Kikuchi et al (US 5,912,706).*

Applicant (amendment, filed 5/27/205) amends claims 1, 6 - 9, 1418 – 20, 22 – 25, 33 – 40 and 44 – 46.

### ***Claim Objections***

2. Claim 25 is objected to under 37 CFR 1.75(c), as being of improper dependent form. Claim 25 should be dependent to claim 23 not to claim 24. Claim 24 does not include the steps as cited in claim 23. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 – 20, 23 – 36 and 39 - 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikuchi et al (US 5,912,706).

Regarding claim 1, Kikuchi '706 discloses " a system for providing video data" (i.e. fig. 1), and "a decoder configured to receive a bit-stream, comprising video data and a residual error vector index ....." (i.e. fig. 6, 212) and "a residual error codebook (i.e. fig. 6, 204), comprising a set of residual error vectors and a residual error vector index (i.e. fig. 6, 212) associated with each residual error vector (i.e. fig. 6, 213), each residual error vector (i.e. fig. 6, 213) in the set of residual error vectors comprising an array of predetermined motion compensation errors" (i.e. fig. 6, 126, col. 7, lines 20 – 25).

Regarding claims 2 – 3, 10 – 12 and 16 - 18, the limitations, decoder apparatus performs motion estimation and compression on "a pixel by pixel basis" reads on (i.e. figs 17 – 18, pixel accuracy).

Regarding claims 4, 6 and 13, the limitation "decoder apparatus generates reconstructed video data ..... in claim 4", (i.e. col. 1, 12 – 19) and "codeword decoder that decodes a codeword for the residual error vector, in claims 6 and 13" as claimed, reads on (col. 3, lines 1 – 2, decoding).

Regarding claims 5 and 36, the limitations "predetermined motion compensation error include a predetermined motion compensation error for each pixel in the block" as claimed, reads on (col. 48, lines 13 – 19).

Regarding claims 7 – 9, 34, 44 and 46, the limitations as claimed are similar to claim 1, and therefore the ground for rejecting claim 1 also applies here. Furthermore, for additional limitation "converting the residual error vector index to a residual error

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vector” please see (col. 18, lines 21 – 29), and as for “computer readable medium in claim 46” please see (fig. 38, computer 1001 and workstation 1005).

Regarding claim 19 - 20, the limitation “a residual error calculator” as claimed, reads on (fig. 6, error calculator 202).

Regarding claims 14 - 15, the limitations claimed are substantially similar to claim 1, therefore the ground for rejecting claim 1 also applies here. Further more for the additional limitation “an encoder apparatus that receives uncompressed video data .....” please see (fig. 5, encoder apparatus) and “system encoder that embeds a selected residual error vector index

in the compressed video data, in claim 15” (i.e. col. 4, lines 51 – 62, col. 5, lines 15 – 39).

Regarding claims 23 – 24, 32 and 45, Kikuchi '706 discloses, “a method for encoding video data, comprising; generating synthesized video data .....” (i.e. fig. 5), and “comparing and selecting .....” reads on (i.e. col. 18, lines 14 – 28).

Regarding claim 26, the claimed “performing motion estimation” reads on (i.e. fig. 5, MC 125).

Regarding claims 27, 28 and 33, the limitations claimed are covered earlier with respect to claims 3, 12 and 15, above.

Regarding claims 29 – 30, the limitation as claimed, “partitioning the video data into blocks” and “wherein the block has a rectangular or square shape” reads on (i.e. col. 3, lines 44 – 45).

Regarding claim 31, the limitations as claimed, and “coding mode” reads on (i.e. col. 10, lines 18 – 26).

Regarding claims 40 – 41, 35 and 39, the limitations claimed, “generating a cluster for each residual error vector in residual error code book and receiving a set of motion compensation error block” reads on (i.e. col. 44, lines 40 – col. 45, lines 13) and “assigning each of the motion compensation error to a cluster and designating .....” reads on (col. 44, lines 63 – 67 classifying) and “updating .....” reads on (i.e. col. 45, lines 12 – 13), and “codeword in claim 39” reads on (i.e. col. 23, lines 27 – 29).

Regarding claims 25, 42 and 43, the claimed limitation “repeating steps ..... for each residual error vector in the set of residual error vectors” reads on (i.e. col. 45, lines 1 – 3).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 21 – 22, 37 – 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi '706 in view of Morris et al (US 5,818,536).

Regarding claims 21 – 22, Kikuchi '706 teaches “encoder for receiving and encoding uncompressed video data and codebook comprising residual error vectors” as discussed earlier. Kikuchi '706 fails to explicitly show “synthesis cost/coding cost” as claimed. However the above features are well known and used in the prior art of the

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record as evidenced by Morris '536 (i.e. abstract, lines 12 – 15) wherein teaches the cost function to provide the best trade-off for motion vector accuracy. Therefore it would have been obvious to one skilled in the art at the time of the invention was made to use the teaching of Morris '536 and modify the system of Kikuchi '706, to improve the video coding effectiveness.

Regarding claims 37 – 38, the limitations as claimed “wherein the codebook includes between about 256 error vectors and about 4096 error vectors” and “wherein the codebook includes between about 512 error vectors and about 2048 error vectors”, is actually the number of error vectors, which depends on desired accuracy. Therefore, reads on “selecting candidate vectors with respect to accuracies” as taught by Kikuchi '706 and Morris '536 (i.e. col. 4, lines 20 – 25 of Morris and col. 12, lines 35 – 39 of Kikuchi).

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Behrooz Senfi** whose telephone number is **(571) 272-7339**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mehrdad Dastouri** can be reached on **(571) 272-7418**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**Or faxed to:**


**(703) 872-9314**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relative to the status of the application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

B. M. S. 

8/5/2005

  
VULE  
PRIMARY EXAMINER